Basic Cinema Ticket Booking System

A person holding a ticket next to a ticket machine

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# Requirements Specification

Design and create code for a basic ticket booking system, the program should be designed using switch statements and arrays to call relevant methods and logical program blocks using appropriate data types to simulate and model the problem.

The program needs to

* Record of all transactions - total number of tickets sold.
* Total value of all transactions.
* Average cash per transaction.
* Be able to choose a movie.
* Choose a time.
* Choose quantity.
* Ticket type.

Include at least two instances of data type conversions.

Goal: Design, code and create a basic cinema ticket booking system

Guidelines: The program interface should be designed using switch statements and arrays to call relevant methods and logical program blocks.

The program should use appropriate data types to simulate and model the problem.

In addition to selling different ticket types, the program should keep a record of all transactions – total number of tickets sold, total value of all transactions and the average cash per transaction. You should be able to choose a movie, choose a time, choose quantity, and ticket type.

Part of your program there should be at least two instances of data type conversions (Converting a String to Integer etc)

# Design

## Algorithm

An algorithm is a set of instructions that are followed in a specific order to solve a problem or accomplish a task. In programming, algorithms are often used to perform tasks such as sorting data, searching for information, or performing mathematical calculations. Algorithms can be written in any programming language and are an essential part of computer science and software development. Algorithms are typically designed to be efficient and to use as few resources as possible, such as time and memory.

This algorithm is used for the payment for the adult ticket of the cinema. It contains the quantity and ticket type. Here's the steps involved:

1. The user is prompted to choose a quantity of tickets for adult tickets to purchase.
2. The price of the tickets is calculated by multiplying the quantity by a fixed price per ticket, in this case it is 9.50.
3. The user is prompted to enter payment they put in.
4. If the payment is less than the price of the tickets, the user is prompted to enter the remaining balance until the payment is equal to or greater than the ticket price.
5. If the payment is greater than the price of the tickets, the algorithm calculates the change due and displays it to the user.
6. The algorithm increments a counter for the total number of transactions and the total number of tickets purchased. It also updates the total value of all transactions for the counter and calculates the average cash per transaction.
7. The algorithm displays a message to the user indicating that the transaction was successful and that the tickets can be collected.

This algorithm uses a while loop to handle the case where the payment is less than the ticket price. The loop continues to execute if the payment is less than the price, prompting the user to enter the remaining balance each time. When the payment is equal to or greater than the price, the loop exits and the algorithm proceeds to the next step.

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## Flowchart

Diagram

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# Development

## Coding

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## Data Conversion

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# Testing

## Errors

### Syntax Error

* A syntax error is an error in the source code of a program that prevents the compiler or interpreter from being able to understand it. Syntax errors are usually caused by typos, incorrect use of punctuation, or missing code elements.

### Logic Error

* + A logic error is a type of error that occurs when a program produces unintended results or behaves in an unexpected way. It is caused by incorrect or flawed logic in the code and is not detected by the compiler or interpreter. Logic errors can be difficult to identify and fix because the code is syntactically correct, and the program will run without producing any error messages.

### Runtime Error

* + A runtime error is syntactically correct but contains an issue that is only detected when a program is running. It can be caused by a variety of factors, such as attempting to access an index that is out of bounds of an array, dividing by zero, or trying to use a null reference.

## Debugging

Debugging is the process of identifying and fixing errors in computer programs. It is an essential part of the software development process, as it allows developers to find and correct problems that prevent their programs from functioning correctly.

A screenshot of a computer

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On line 32, I had a syntax error where I wrote "movietitles" instead of "movieTitles" because I forgot to use my camel case correctly, and due java being case sensitive it doesn’t recognise the array name.

It is a small but crucial mistake.